

An inaugural dissertation  
 On  
 Hydrocephalus Internus

Cyrus W Trimble

passed March 15. 1819

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It has not been more, than half a  
century, since Hydrocephalus Internus, was  
known, as a distinct disease: The Ancients  
had, but a very imperfect notion of it  
Hippocrates in his work "de morbis"  
speaks of a collection of water in the brain,  
and has enumerated some, of the signs  
of its appearance, but his knowledge  
respecting it appears, to have been extremely  
limited.

Hieronymus Mercurialis in his *Opuscula aurea*,  
says, that such a thing, as a collection of  
water in the brain may happen, but  
declares, that in such a case Apoplexy  
must be the consequence: Other ancient  
authors have spoken of the disease, but their  
accounts, are equally vague, and unsatisfactory.

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persons of a more advanced age; cases of this kind, are related by different authors:

\* Quin mentions several instances, where it attacks grown persons.

Children of almost every age, are subject to this disease; it most generally occurs from the 2<sup>d</sup> to the 10<sup>th</sup> year - Dr Rush saw a case, where it affected a child of 6 weeks old; here it was preceded by the Cholera Infantum.

Hydrocephalus Internus cannot be considered, as an hereditary disease; yet there appears to be a peculiarity in the constitution, which predisposes several children of the same family to be affected with it.

This is what has been termed the Cephalic temperament, and it has been observed, that children, in whom this peculiarity exists, are remarkable for their vivacity, and cheerfulness.

In addition to this, children predisposed

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to Hydrocephalus, have an unusual transparency of the skin, particularly about the temples, forehead, and neck; the eyes are full, prominent, and brilliant, and resemble in several respects children liable to Scrophular. This disease, when observed in its commencement is marked by most of the following symptoms. The patient is at first generally languid, and inactive; there is loss of appetite, nausea, and frequently a vomiting occurs, once, or twice a day.

The child frequently manifests a disposition for reclining on a sofa, chair, or lap of the mother; is often peevish, and fretful, but at intervals cheerful, and to all appearances free from the complaint.

The tongue is observed, to be white; there is occasional thirst, and towards evening the skin is hot and dry.

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Not long after the appearance of these  
symptoms a sharp headach supervenes;  
Sometimes in the forehead, but generally  
in the crown of the head: it frequently  
however affects the side of the head, if  
this is the case when the patient is erect the  
head inclines to the side affected.

This symptom is frequently observed to alternate  
with the affections of the stomach, the  
vomiting being less troublesome, when the  
pain is most violent, and vice versa.

The bowels at this time, are obstinately  
costive, and when evacuations are  
obtained, they are dark, and of a  
very disagreeable smell.

The patient cannot bear the light, and  
complains when a lighted candle is  
brought before his eyes; sleeps little,  
and when he does, he grinds his

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teeth, frowns, picks his nose; and starts  
often screaming, as if he were terrified.  
The pulse at this time is somewhat accelerated.

After a few days continuance, all the  
symptoms above mentioned, are very much  
exacerbated. the vomiting becomes more  
constant. the head-ach more excruciating,  
and every symptom of fever makes its  
appearance: the pulse is frequent, and  
the breathing quick; exacerbations of the  
fever take place towards evening, and  
there is a flushing of the face; generally  
one cheek is more affected, than the  
other.

The system at this time frequently makes  
an ineffectual effort, to relieve itself  
by some temporary evacuation, either  
by perspiration, or bleeding at the nose.

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After continuing in this state for some time, subject however to great variations, the disease throws off its masks, and is exhibited in all its terrors, by ushering in a train of symptoms, which by, Whyll has been called its second stage. \*

Here the pulse becomes slow, and unequal; the pain in the head subsides, but the heat of surface is unabated: the restlessness, and interrupted slumbers, which prevailed during the early period of the disease, are now succeeded by an almost lethargic torpor; Stenismus, and dilatation of the pupils come on; the patient lies, with one, or both eyes half closed; they are insensible to the light, and are observed to be turned in towards the nose. The hands remain obstinately exte-

\* Cheyne who has written a very excellent treatise on this subject divides the 1<sup>st</sup> stage, that of increased sensibility the 2<sup>d</sup> that of increased torpor, & the 3<sup>d</sup> the convulsed state.

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The breath is now, but particularly in the last stage very offensive.

If the disease is supposed to run on uninterrupted other symptoms appear, which but too clearly announce the speedy approach of death.

The pulse now becomes regular, but so very weak, and quick, as scarcely to be counted; the patient is drowsy, and comatose; there is a difficulty of breathing; and when aroused he utters incoherent words, and appears to be insensible.

Frequently before death the tunica conjunctiva becomes suffused with blood; the flushings of the face are more frequent, followed by a deadly paleness; respiration becomes more laborious; deglutition more difficult; subattus tendinum; and Convulsions close the scene.

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To prove, that a uniformity in the occurrence of the above symptoms cannot be expected, and that we must look for frequent deviations from the history of the disease, which has been given, I shall cite the authority of several writers.

\* Dr Rush mentions one case, where the appetite was unimpaired from the first, to the last stage of the disease, and one, in which no preternatural hæmorrhage, or intermission, was ever perceived in the pulse.

† Dr Bruin mentions a case, where the jaws of the child, were firmly locked a day before death, and one, where hæmiplegia occurred, attended with some remarkable circumstances.

As it is of importance, to distinguish Hydrocephalus, from some other

\* Rush's works Vol 3 p 321-2

† Bruin's treatise p 221-2

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Analagous affections of children; and as upon an early attention to this circumstance, a successful treatment of the disease very much depends; I shall say a few words on the Diagnosis.

Hydrocephalus Internus may be distinguished from fever depending upon dentition, or worms (to which it has a resemblance in many respects) by the Stammering or alteration of voice, and sometimes an entire loss of speech, which attends the latter affections, and also by a spasmodic twisting of the limbs, which does not appear untill near the close of Hydrocephalus. We should never observe the aversion to light, sharp pain in the head, sudden screams, heat of the surface, Vomiting; and Costiveness, without suspecting Hydrocephalus; More)

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especially, when it is known, that  
children of the same family have  
been affected, with this disease.

In the more advanced stage of the  
complaint, when we see strabismus,  
dilatation of the pupils, stupor, and  
blindness, we can be no longer  
ignorant, as to its nature.

Concerning the causes of this disease,  
not a little diversity of opinion has  
been entertained; by different authors  
Wright, and some of the other European  
writers supposed it to depend upon a  
serous condition of the blood; or putrid  
lymphatic, Cachexy, &c.

These notions, however popular, they  
may have been at the time they  
were promulgated, are now very  
discreedly laid aside; and phlogistic

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After a more enlarged experience, and  
closer observation, have agreed, to refer  
the disease, to causes, which produce an  
increased, and altered action of the  
vessels of the brain:

These causes may act, either directly on  
the brain itself, or upon it through  
the intervention of the general system;  
of the former, are falls, blows, and  
certain childish plays: these, are comparatively  
of rare occurrence, and some authors  
have doubted, whether they are ever  
instrumental in producing the disease.

The causes, which act indirectly on the  
brain, are certain diseases of the  
whole system, such as, Small pox,  
Measles, and Scarlatina\*.

But by far the most frequent cause, of  
the disease, is a disordered condition of

\* Rush's works Vol 2 p 223  
also 2<sup>d</sup> ed in the Med. Journal

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the digestive organs; together with some  
of the neighbouring viscera, and more  
particularly the liver, producing a morbid  
impression upon the brain, by means  
of their sympathetic connection.

Taking into view the wide influence,  
which these organs possess over the whole  
system, but more especially the brain,  
we cannot be at a loss in accounting  
for all the symptoms, which mark the  
appearance, and progress of Hydrocephalus.  
Whatever may have been the difference  
among practitioners, as regards the pathology  
of this disease, it is now universally  
conceded, to be in its commencement  
an inflammatory affection, and is to be  
treated by all those remedies calculated,  
to subdue inflammation.

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Not think there can be the slightest doubt  
the symptoms, which characterize the origin,  
and progress of the complaint; together,  
with the appearances, which have been  
revealed to us by dissection, are all  
so many proofs, of an inflammatory  
action in the brain.

In the treatment of Hydrocephalus.  
much depends upon attacking the  
symptoms at an early period of the  
complaint; therefore, when we are assured  
of its existence, no time should be lost  
in resorting to those remedies best calculated  
to break the force of the disease before,  
it is completely formed.

For this purpose Trepanning, is unquestionably  
the proper remedy; we must be regulated  
in its employment, by the age,  
constitution, and violence of the existing

symptoms -

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## Symptoms-

If there exist strong marks of inflammatory action, and the patient be of a plethoric constitution, we must bleed pretty freely, and repeat the operation, so long, as the urgency of the case may demand.

Topical depletion by means of cups, and leeches, may be had recourse to, with the greatest advantage; either, when the patient is very young, or too weak, to bear the loss of any considerable quantity of blood, by general bleedings; and where the operation can be performed, with safety, the opening of the temporal artery, has been recommended, as highly beneficial.

This remedy operates in a way exceedingly intelligible to us, by acting more immediately on the part affected, it

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leaves the determination of blood to the head; without drawing too far upon the resources of the general system -

It was for this purpose, that Morgagni \* recommended free incisions, to be made in the occipital veins; and he relates several cases, where he succeeded, in relieving affections, of the head, in this way.

The next thing, to we attend to, is the state of the alimentary canal: In support of the efficacy of purgative Medicines in Hydrocephalus we have the concurrent testimony, of almost every practitioner. As in this disease the bowels are in a very torpid, and inactive condition; we should employ those Medicines best calculated to excite them into action, and procure copious alvine discharges; these may be employed without inducing debility,

\* Morgagni de Causis & Sedibus Morborum

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On the contrary, with evident accession of  
strength; so long, as there is faulting of  
the bowels, and the stools of a dark, and  
unhealthy appearance.

For the purposes, which have been mentioned  
Calomel has been very generally Concocted.  
In addition to its active purgative qualities  
it is recommended, by the facility, with which  
it is exhibited; being destitute of taste,  
or odour, it is taken by children, with  
the greatest ease.

Calomel may be employed either alone,  
or in combination; Most generally, however  
with Salap. V or  $\frac{1}{2}$  gr Cal. united with  
 $\frac{1}{2}$  li of X gr Salap. May be given to a  
child 3 years old, and is a medicine  
admirably well calculated, to stimulate  
the torpid intestines, and to purge off the  
poult, and offensive matter, with which  
the bowels are loaded:

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In the more advanced stages of the disease, where there exists in the intestines, an almost insensibility to impression, some of the more drastic articles may be found necessary. Co-operating to the same end, with the remedies which have been mentioned, are blisters. Although denied by some authors; yet experience, (an only guide in cases of uncertainty) has fully proved their efficacy; they should be large enough, to cover the whole head, and are to be kept constantly discharging. Blisters most probably act, by diminishing the quantity of circulating fluid, and also, by producing a Counter irritation. Throughout the whole progress, of the first stage of the disease, we should be attentive to keep the patient's head constantly elevated, by attending to this circumstance, we will in some measure counteract the violence, with which the blood is driven towards

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(Bathing) the feet in warm water, is a remedy which has been found so useful in other affections of the head, that practitioners have been induced, to employ it in Hydrocephalus, and it is said, to be highly beneficial.

These are the remedies, together with a strict adherence to the Antiphlogistic plan in every respect, which have been found most useful, in the inflammatory stage of Hydrocephalus, and if judiciously employed, will not unfrequently effect a cure of the Complaint. But, if, by the means already mentioned, we are unable, to check the farther progress of the disease, it generally terminates, by producing, an effusion of water into the ventricles of the brain, or some organic ~~dangerous~~ <sup>change</sup> in its structure.

When this is the case, I need not say how discouraging becomes the situation of the patient,

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but even here we should not despair; Cases seemingly the most unpromising, have sometimes been cured, by the pursuing Vigorous Measures. In this Stage of the disease, the only remedy, which, is entitled, to any degree of Confidence, is Mercury; and it has even been a question among Physicians; whether Mercury is ever beneficial in this Complaint?

~~Given~~ in Minute quantities, it is not surprising, that the remedy should fail, in subduing a very obstinate, and confirmed Disease; but when employed, with, a more liberal hand, its good effects, have been frequently apparent.

In Support, of the efficacy, of Mercury in Hydrocephalus, we have the testimony, of the present Professor, of the practice in the University, of Pennsylvania; And by no other Physician, has it been, so literally, or so successfully employed.

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When we have determined upon producing  
a powerful mercurial impregnation, the medicine  
should be employed in very large quantities  
after giving it internally, as much as the  
stomach and bowels will bear; we should  
then resort to mercurial frictions diligently  
applied, with the strongest ointment.

In addition to this mercurial plaisters  
should be applied, to the head, and  
other parts of the body, and the blisters  
should be dressed, with mercurial ointment.

It is, by pursuing this course alone, that  
mercury can be, of any service, in this  
stage of Hydrocephalus, and we will  
sometimes effect a cure, as unexpected,  
to ourselves, as gratifying, to the friends,  
of the patient.

Dissertation

Acute Rheum.

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